

Date: Thu, 3 Mar 94 04:30:46 PST  
From: Ham-Equip Mailing List and Newsgroup <ham-equip@ucsd.edu>  
Errors-To: Ham-Equip-Errors@UCSD.Edu  
Reply-To: Ham-Equip@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Equip Digest V94 #50  
To: Ham-Equip

Ham-Equip Digest                      Thu, 3 Mar 94                      Volume 94 : Issue    50

Today's Topics:

500 Hz filter useless or useful in NRD-535D ?  
    Comments on TAPR-2 board?  
    Comments on Yaesu FT-890AT  
    Info. on Morris Please?  
    MFJ SWR Analyzers (3 msgs)  
    TS50 higher power mod file  
    WANT: Controller  
    WANT: UHF Duplexers  
    Wanted: Diamond X500NA

Send Replies or notes for publication to: <Ham-Equip@UCSD.Edu>  
Send subscription requests to: <Ham-Equip-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Equip Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-equip".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Wed, 2 Mar 1994 21:59:41 GMT  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!uwm.edu!fnnews.fnal.gov!att-in!cbnewse!  
parnass@network.ucsd.edu  
Subject: 500 Hz filter useless or useful in NRD-535D ?  
To: ham-equip@ucsd.edu

I have a spare JRC 500 Hz filter and am trying to determine whether it  
would be worthwhile to install it in the NRD-535D or whether the  
variable bandwidth feature makes a 500 Hz filter superfluous.

Anyone tested the Japan Radio NRD-535D to determine whether there's  
a performance difference between these two scenarios on CW or RTTY?

1) Use the INTERMEDIATE bandwidth filter (2 kHz)

with the variable bandwidth control set at minimum (500 Hz).

2) Use the optional NARROW bandwidth filter (500 Hz)  
with the variable bandwidth control disabled.

Is the shape factor better in scenario (2)?

Thanks.

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=====
                        Copyright 1994,  Bob Parnass,  AJ9S
                        AT&T Bell Laboratories  -  parnass@ih4gp.att.com  -  (708)979-5414
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```

Date: Tue, 1 Mar 1994 18:10:58 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!europa.eng.gtefsd.com!  
news.umbc.edu!eff!news.kei.com!world!dts@network.ucsd.edu  
Subject: Comments on TAPR-2 board?  
To: ham-equip@ucsd.edu

In article <1994Feb28.202528.6888@newsgate.sps.mot.com> rapw20@email.sps.mot.com  
writes:

>Has anyone out there built a TNC from the TAPR-2 circuit board? If so, I'd be  
>interested in hearing about it. Specifically, how difficult was it to locate  
>parts, was it any cheaper than buying a used 1270 or other clone, any problems  
>getting it to work?

>

>I'm looking for a (relatively) cheap entry into the 9600bps packet world and  
>building a TAPR TNC and adding the 9600 modem seems like one way to do it.

>

>Any comments will be appreciated.

>

>Thanks & 73... Mark AA7TA

I have built one and have a second partially complete. You would certainly  
do better buying a TNC instead. DSRI has some with 9600 built in, and so  
forth. The biggest advantage I see with the TAPR modem is the ability to  
do bit regen, but that is only an issue for your full duplex packet  
repeater, not for user equipment.

Dan

--

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Daniel Senie                        Internet:      dts@world.std.com
Daniel Senie Consulting             n1jeb@world.std.com
508-365-5352                       Compuserve:    74176,1347
```

-----  
Date: Tue, 1 Mar 1994 18:15:19 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!news.intercon.com!panix!ddsw1!  
news.kei.com!world!dts@network.ucsd.edu  
Subject: Comments on Yaesu FT-890AT  
To: ham-equip@ucsd.edu

In article <hamilton.762488948@BIX.com> hamilton@BIX.com (hamilton on BIX) writes:  
>ace@reality-tech.com (Anthony Scandurra) writes:

>  
>>I am interested in buying this transceiver and would like some comments  
>>from people who have used it. Thnak you in advance for your response.

>  
>>If you know what issues that reviews for the rig appeared in CQ and  
>>QST, I would also like to get this info.

>  
>>Anthony Scandurra  
>>KA2FFS

>  
>I was almost ready to buy the 890. I was really attracted to the  
>tiny packaging, the terrific ergonomics, etc. But then a couple  
>folks sent me mail in response to a question I posed much like  
>yours telling me that while it's a great little unit, if cost is  
>paramount, that I should think about the 990 instead.

>  
>Am I glad for their suggestion!

>  
>When I looked at it more closely, I saw they were right. For about  
>20% more, you sure get a lot more than 20% more radio! You get quad,  
>not triple conversion, a 10-key pad (oh, that is wonderful!), RTTY  
>and packet modes (with special connectors on the back panel!), more  
>filter options and the "digital" audio filter (actually, it's not  
>digital, but it sure is effective).

>  
>Part of the problem with 890 is that it's easy to get hung up on the  
>small size and low price, forgetting you also need a power supply.  
>Add that in and, as I said, you're talking only a 20% difference. I  
>still believe the 890 is nice little rig, especially if you need the  
>small size for use in vehicle, but the 990 is clearly more radio and  
>a better value. I've had mine for about a month and am really pleased.

>  
>Regards,  
>Doug Hamilton hamilton@bix.com Ph 508-358-5715  
>Hamilton Laboratories, 13 Old Farm Road, Wayland, MA 01778-3117

The FT990 is a fine radio, and is my choice for RTTY especially (RTTY  
mode gives you FSK, works for Amtor, Pactor). However the radio is

triple conversion on receive. The FT-1000 is quad conversion.

My biggest complaint with the FT890 (and the FT840, Icom's 737, etc.) is the lack of FSK. The last portable FSK rig, the IC-751A, just went out of production. The FT990 is a little large for taking RTTY on the road.

Dan

--

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-----
Daniel Senie                Internet:    dts@world.std.com
Daniel Senie Consulting      n1jeb@world.std.com
508-365-5352                Compuserve:  74176,1347
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Date: Tue, 1 Mar 1994 16:59:07 GMT  
From: ihnp4.ucsd.edu!swrinde!gatech!darwin.sura.net!gatekeeper.es.dupont.com!  
esds01.es.dupont.com!MEHDIZM%esvx19.es.dupont.com@network.ucsd.edu  
Subject: Info. on Morris Please?  
To: ham-equip@ucsd.edu

Can anybody give me any info on how to contact Morris, which is  
apparently a manufacturer of Ham equipment?  
Thank you.

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Date: Tue, 1 Mar 1994 16:57:34 GMT  
From: ihnp4.ucsd.edu!swrinde!gatech!darwin.sura.net!gatekeeper.es.dupont.com!  
esds01.es.dupont.com!MEHDIZM%esvx19.es.dupont.com@network.ucsd.edu  
Subject: MFJ SWR Analyzers  
To: ham-equip@ucsd.edu

In article <henrysCLzps3.4Ez@netcom.com>, henrys@netcom.com (Henry B. Smith)  
writes:

>Is anybody familiar with either the MFJ-249 or MFJ-259 SWR analyzers?  
>Can the MFJ-259 really measure feed-point resistance when it is  
>inserted at the equipment end of the coax?

>

>A general question: Can you dependably determine the resonance of an  
>antenna by looking for the lowest SWR?

>

1- Strictly speaking, no. SWR is a quantity which some of the vector  
nature of impedances is lost in it. Resistance is only the real part  
of an impedance. Reflection coefficient (Greek row) is the ratio of  
complex impedance of the load to the characteristic impedance of the  
line. Then SWR is  $(1 + \text{Abs}(\text{Row})) / (1 - \text{Abs}(\text{Row}))$ , where Abs(Row) means the  
absolute value of Row. This is where the pure resistance information

gets dropped. Therefore SWR only a measure of how much power goes in, and how much is reflected. In order to arrive at resistance, you need some phase information.

2- Yes, the lowest SWR an exact indicative of resonance of an antenna, as it is connected to the line. However, if the coupling of the antenna to the line changes, there is a small shift in the resonance.

-----  
Date: Tue, 1 Mar 1994 16:23:50 GMT  
From: ihnp4.ucsd.edu!swrinde!gatech!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu  
Subject: MFJ SWR Analyzers  
To: ham-equip@ucsd.edu

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>inserted at the equipment end of the coax?  
>

>A general question: Can you dependably determine the resonance of an  
>antenna by looking for the lowest SWR?

No. This only works if the antenna feed point impedance approaches the characteristic impedance of the coax most closely at resonance. That's roughly true for dipoles, but not for some other types of antennas. For example, a 1/4-wave monopole has a feed point impedance at resonance of about 36 ohms. At either side of resonance, the impedance (complex) increases. So there are two points where the impedance will be closer to 50 ohms than the resonant point. So if you see 1:1 SWR on your 1/4-wave monopole, there's something wrong. (In fact as a general rule of thumb, if you have a SWR of 1:1 on any simple antenna which has no special matching network at it's feed point, there's something wrong.)

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

-----  
Date: 1 Mar 1994 21:23:39 GMT  
From: ihnp4.ucsd.edu!swrinde!elroy.jpl.nasa.gov!ncar!elmore@network.ucsd.edu  
Subject: MFJ SWR Analyzers

In article <1994Mar1.162350.22173@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary Coffman) writes:

... snip ...

```
>antennas. For example, a 1/4-wave monopole has a feed point impedance
>at resonance of about 36 ohms. At either side of resonance, the
>impedance (complex) increases. So there are two points where the
>impedance will be closer to 50 ohms than the resonant point. So
>if you see 1:1 SWR on your 1/4-wave monopole, there's something
>wrong. (In fact as a general rule of thumb, if you have a SWR of
>1:1 on any simple antenna which has no special matching network
>at it's feed point, there's something wrong.)
```

Gary, are you *sure* of this? An extrapolation of what you wrote says that if you terminate a 50 ohm line with a pure 50 ohm reactance, the SWR is 1:1. I don't think that's right. When I work the problem out on a Smith chart, terminating a line with a reactance equal to it's characteristic impedance yields an infinite SWR. Taking this to a more reasonable point, the lowest SWR should occur at resonance, when the antenna impedance is purely resistive; any deviation from that point will yield a rise in SWR regardless of the impedance value due to the reactive components. Have I missed something?

Kim Elmore, [N50P, PP ASEL/Glider 2232456]

```
* _._ ._. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. *  
*   Said by NQOI while working on his shack:                               *  
* "All these *wires*! Why do they call it `wireless'!?"                      *  
* _._ ._. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. _.. *
```

Date: Tue, 1 Mar 1994 21:12:37 -0700

From: ihnp4.ucsd.edu!swrinde!gatech!newsxfer.itd.umich.edu!nntp.cs.ubc.ca!alberta!  
ve6mgs!usenet@network.ucsd.edu

Subject: TS50 higher power mod file

To: ham-equip@ucsd.edu

well, let me add that the TS-50 and TS-850 seem to have the exact same final amp and low pass section.

I upped my 850 2 years ago, and there is no problem..

The only concern is that the driver board cannot handle the higher power...the 940 will toast if you up its power.

The little 50s has a little less air flow...so it is probably

advisable to keep it to about 150-175...and...the one chip  
cap on the board near the processor..at the Up processing matrix  
IS the one to remove for full coverage XMI  
T..did I say cap..Diode..  
Thats it....ZZ

-----  
Date: 1 Mar 1994 16:59:57 -0500  
From: ihnp4.ucsd.edu!agate!msuinfo!news.mtu.edu!news.mtu.edu!not-for-  
mail@network.ucsd.edu  
Subject: WANT: Controller  
To: ham-equip@ucsd.edu

I am looking for a good used repeater controller:

Prefer RC85, or RC96 or similar item.

Although, I am not as interested in voice capabilities as I am a reliable  
good working controller with USEFULL features and autopatch.

Please E-Mail all inquireies with price, specs, etc. etc..

Thanks! and 73

Chris ==- N8PBI

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Date: 1 Mar 1994 16:58:21 -0500  
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!  
howland.reston.ans.net!news.moneng.mei.com!uwm.edu!msuinfo!news.mtu.edu!  
news.mtu.edu!not-for-mail@network.ucsd.edu  
Subject: WANT: UHF Duplexers  
To: ham-equip@ucsd.edu

I am looking for UHF Duplexers for a repeater I am setting up.

Please E-Mail me the specs, price etc.. . if you have any that you  
would like to sell. Give as much info as possible.

Thank you.

Chris ==- N8PBI

-----  
Date: 1 Mar 1994 16:55:02 -0500

From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!  
howland.reston.ans.net!news.moneng.mei.com!uwm.edu!msuinfo!news.mtu.edu!  
news.mtu.edu!not-for-mail@network.ucsd.edu  
Subject: Wanted: Diamond X500NA  
To: ham-equip@ucsd.edu

I am looking for a Diamond X500HNA or X500NA

If you have one, and would like to sell and it is in good  
condition, please Email me with a price, and how old it is etc.. etc..

Thank you!

Chris ==- N8PBI

-----  
Date: Wed, 2 Mar 1994 09:41:14 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!news-feed-2.peachnet.edu!  
news-feed-1.peachnet.edu!emory!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu  
To: ham-equip@ucsd.edu

References <1994Mar1.162350.22173@ke4zv.atl.ga.us>, <2l0bor\$g9m@ncar.ucar.edu>,  
<2l0j7q\$g5c@news.acns.nwu.edu>mei.pin  
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)  
Subject : Re: MFJ SWR Analyzers

In article <2l0j7q\$g5c@news.acns.nwu.edu> rdewan@casbah.acns.nwu.edu (Rajiv Dewan)  
writes:

>In article <2l0bor\$g9m@ncar.ucar.edu>, Kim Elmore <elmore@rap.ucar.edu> wrote:

>

>>Taking resonance, when the antenna impedance is purely resistive; any  
>>deviation from that point will yield a rise in SWR regardless of the  
>>impedance value due to the reactive components. Have I missed  
>>something?

>>

>

>I am afraid so. If what you say were true then it would not be possible  
>to match, let us say 10 ohm resistive, with a 50 ohm system using  
>only reactive components. But this is not correct.

>

>Reductio ad absurdum implies...

No. You're neglecting the phase shift across the matching network.  
That's the same as rotation around the constant SWR circle and allows  
the transform from one purely resistive impedance to another. When  
the reactance is beyond the termination point, that phase shift doesn't  
apply. Looking at it another way, the matching network is in some sense



a transformer, while a reactive antenna is not. That was my original mistake, I neglected to allow for the vectorization of the impedance.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: Wed, 2 Mar 1994 09:28:51 GMT

From: ihnp4.ucsd.edu!swrinde!gatech!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu

To: ham-equip@ucsd.edu

References <henrysCLzps3.4Ez@netcom.com>, <1994Mar1.162350.22173@ke4zv.atl.ga.us>, <2l0bor\$g9m@ncar.ucar.edu>

Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)

Subject : Re: MFJ SWR Analyzers

In article <2l0bor\$g9m@ncar.ucar.edu> elmore@rap.ucar.edu (Kim Elmore) writes:

>In article <1994Mar1.162350.22173@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary Coffman) writes:

> ... snip ...

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>>wrong. (In fact as a general rule of thumb, if you have a SWR of  
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>

> Gary, are you \*sure\* of this? An extrapolation of what you  
>wrote says that if you terminate a 50 ohm line with a pure 50 ohm  
>reactance, the SWR is 1:1. I don't think that's right. When I work  
>the problem out on a Smith chart, terminating a line with a reactance  
>equal to it's characteristic impedance yields an infinite SWR. Taking  
>this to a more reasonable point, the lowest SWR should occur at  
>resonance, when the antenna impedance is purely resistive; any  
>deviation from that point will yield a rise in SWR regardless of the  
>impedance value due to the reactive components. Have I missed  
>something?

No, you haven't missed anything, but I did. Comes from posting before the caffeine kicks in. :-( You're correct that the reflection coefficient will be minimum, but not necessarily zero, when the antenna is at resonance.

What I said about the impedance being 50 ohms either side of resonance is correct too, but complex impedances are \*vector\* quantities while the SWR equation resolves them to scalars. Arrgh!

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: 2 Mar 1994 05:57:42 GMT  
From: ihnp4.ucsd.edu!sdd.hp.com!col.hp.com!bobw@network.ucsd.edu  
To: ham-equip@ucsd.edu

References <CLn8o3.E4p@cbnewsm.cb.att.com>, <fred-mckenzie-280294165032@k4dii.ksc.nasa.gov>, <CSLE87-010394114555@145.39.1.10>  
Subject : DTMF & CTCSS [Was: HTX-202 Audio]

Somone said:

: > To the best of my knowledge, this is the only REAL bug with the radio. I  
: > haven't seen it, but I understand there is a Radio Shack service bulletin  
: > on adjusting the DTMF level. It reportedly states that you should "adjust  
: > it until it works"! Obviously, there have been complaints about problems  
: > with autopatch.

: This is also a common problem. Many operators adjust the DTMF to the same  
: level as voice peaks, which severely distorts the tones. The proper level  
: for DTMF is 3.0 to 3.5 kHz if your rig is adjusted for deviation limiting  
: at 5.0 kHz. I also recommend that DTMF be sent \*WITHOUT\* CTCSS, or the  
: CTCSS must be set to no more than 350 Hz deviation to maintain the 20dB S/N  
: ratio into the DTMF decoder. Remember that if you take audio directly from  
: the discriminator, there is no filter to keep CTCSS out of the decoder.

It seems like 350 Hz deviation might be too low to be reliable, given all variations in the system. Isn't the real solution to always make sure that the DTMF decoder is protected from CTCSS tones if such tones are in use on a repeater?

Bob Witte / bobw@col.hp.com / Hewlett Packard PMO / KB0CY / (719) 590-3230

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End of Ham-Equip Digest V94 #50

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